



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/598,475

06/01/2007

Ralf Hying

117393-059

5907

24573 7590
K&L Gates LLP
P.O. Box 1135
CHICAGO, IL 60690

09/16/2009

EXAMINER

CHOWDHURY, SULTAN U.

ART UNIT

PAPER NUMBER

2851

MAIL DATE

DELIVERY MODE

09/16/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/598,475		HYING ET AL.	
	Examiner		Art Unit	
	SULTAN CHOWDHURY		2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-41 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 22-41 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/31/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Status

1. Acknowledgment is made of the amendment filed on 1/25/2005 which amended claims 22-41 and cancelled claims 1-21. Claims 22-41 are currently pending.

ISR References

2. Acknowledgment is made of [US 2003/038928 A1, EP 1 100 277 A & DE 100 22 577 A1], cited as an "X" reference in the international search report for [PCT/EP2005/050268].

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "mobile device using a first light source", "light-emitting diode", "photodiode", "camera", "charged couple device", "curvature of the projection surface" & "orientation of a vector" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant

Art Unit: 2851

will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 23, 25-27 & 30-32 are objected to because of the following informalities:

As of claim 23, there is no antecedent basis for "distance is measured". For the purpose of examination, the phrase "distance is measured" is interpreted as "distance is measured on the basis of light emission".

As of claims 25, 27 & 30, there is no antecedent basis for "second signal". For the purpose of examination, the phrase "second signal" is interpreted as "second signal is interpreted as "second signal is measured on the basis of reflected components".

As of claim 26, there is no antecedent basis for "brightness of the surroundings". For the purpose of examination, the phrase "brightness of the surroundings" is interpreted as "brightness of the surroundings is measured from the measured light intensity".

As of claims 30 & 31, the phrase "and/or" renders the claim limitation unclear. The phrase "and/or" should be changed to "or". For the purposes of examination, the phrase is being interpreted as "or."

As of claim 32, the phrases "and/or" and "are/is" render the claim limitation unclear. The phrase "and/or" should be changed to "or" and the phrase "are/is" should be changed to "is". For the purposes of examination, the phrase "and/or" is being interpreted as "or" & "are/is" is being interpreted as "is".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

Art Unit: 2851

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 22-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As of claim 22, there is no written description of “determining at least one variable” and “matching at least one parameter”.

As of claim 23, there is no written description of “distance is measured”.

As of claim 24, there is no written description of “three distance measurements”

As of claim 25, there is no written description of “second signal”.

As of claim 26, there is no written description of “brightness of the surroundings”.

As of claim 27, there is no written description of “second signal”.

As of claim 29, there is no written description of “light-emitting diode”.

As of claim 30, there is no written description of “photodiode” and “reflected signal components”.

As of claim 31, there is no written description of “charge coupled device”.

As of claim 32, there is no written description of “ultrasound range”.

As of claim 35, there is no written description of “brightness of the surroundings”.

As of claim 36, there is no written description of “curvature of the projection surface”.

As of claim 37, there is no written description of “discrete time intervals”.

As of claim 38, there is no written description of “orientation of a vector”.

As of claim 39, there is no written description of “optimum focusing”.

As of claim 40, there is no written description of “maximum value” and “minimum value”.

Art Unit: 2851

As of claim 41, there is no written description of “minimum value” and “one result”.

Claims 28, 33-34 are also rejected as being dependent of claim 22.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 22-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As of claim 22, “determining at least one variable” and “matching at least one parameter” are indefinite due to lack of written description. For the purpose of examination, the examiner interpreted “determining at least one variable” as “calculating the object distance” and “matching at least one parameter” as “correct object distance information can be obtained using the calculated object distance”.

As of claim 23, “distance is measured” is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted “distance is measured using a distance measurement system”.

As of claim 24, “three distance measurements” is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted “three distance measurements are carried out by three LED’s”.

As of claim 25, “second signal” is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted “second signal is emitted from LED2 or LED3”.

As of claim 26, “brightness of the surroundings” is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted “brightness of the surroundings is measured using distance measuring system”.

Art Unit: 2851

As of claim 27, "second signal" is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted "first signal and second signal is generated by emission of light".

As of claim 29, "light-emitting diode" is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted "the light is emitted by one light emitting diode"

As of claim 30, "photodiode" and "reflected signal components" are indefinite due to lack of written description. For the purpose of examination, the examiner interpreted "reflected signal components from the object are detected by a photodiode".

As of claim 31, "charge coupled device" is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted "CCD camera is used to capture image obtained by the reflected light".

As of claim 32, "ultrasound range" is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted "ultrasound pulses are received by ultrasound receiver".

As of claim 35, "brightness of the surroundings" is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted "a projector is used to measure the brightness of the surroundings".

As of claim 36, "curvature of the projection surface" is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted "the curvature of the screen is evaluated based on the efficiency of light at different points of the screen".

As of claim 37, "discrete time intervals" is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted "a CCD sensor senses environmental information at different time interval".

Art Unit: 2851

As of claim 38, "orientation of a vector" is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted "the projector projects light from a distance in z-axis (vector) which is perpendicular to the projection surface".

As of claim 39, "mean distance" is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted "an auto focus system adjusts an optical parameter (focal length) of the optical system of projector lens".

As of claim 40, "maximum value" and "minimum value" are indefinite due to lack of written description. For the purpose of examination, the examiner interpreted "the projector is turned off when projection distance is greater than the maximum predetermined value or less than a minimum value".

As of claim 41, "minimum value" and "one result" are indefinite due to lack of written description. For the purpose of examination, the examiner interpreted "a video projector having a knob for controlling the brightness".

Claims 28, 33-34 are rejected as being dependent of claim 22.

Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claim 22 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 22 is directed to a process which does not meet the machine or transformation test. The claimed steps "determining at least one variable" and "matching at least one parameter" do not require a machine. The preamble recitation "projecting data from a mobile device" does not appear to impose a meaningful limit to the recited steps of the method and does not transform into a particular article. Therefore, it is non-statutory under 35 USC 101.

Art Unit: 2851

Claims 23-41 are rejected under 35 USC 101 as being dependent on claim 22.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 22-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka (US 5,541,723 A).

As of claim 22, Tanaka teaches a method of projecting image data from a mobile (camera) device (col 1, line 7) using a first light source 3 [Fig 1] comprising:

- determining at least one variable (calculating the object distance) representing a characteristic of the current projection surroundings (projection surface) at least once during a current projection phase (light emission by light source 3) [Fig 1]; see Abstract.

- matching at least one parameter of the current projection phase with the determined variable to determine a projection quality of a surface (correct object distance information can be obtained using the calculated object distance); see Abstract.

As of claim 23, Tanaka teaches the distance is measured (using a distance measurement system) on the basis of light emission (col 1, lines 17-20).

As of claim 24, Tanaka teaches three distance measurements are carried out (by using three LED's, LED1, LED2 and LED3) [Fig 18] during the determining step (during light emission and reception) in which the measurement is in each case based on an emitted first signal and the first signals are emitted at different emission angles [Fig 18].

Art Unit: 2851

As of claim 25, Tanaka teaches one second signal is emitted (from LED2 or LED3) [Fig 18], during the step of determining a current projection surrounding (projection surface) and the intensity of reflected components of the second signal is measured (col 1, lines 36-43).

As of claim 26, Tanaka teaches brightness (vignetting effect) of the surroundings is measured (using distance measuring system, col 1, lines 17-18) from the measured (reflected light) intensity (col 1, lines 48-50).

As of claim 27, Tanaka teaches at least one of the first signal (light signal from source 3 to object 5) and the second signal (from object 5 to PSD 10) is generated by emission of light from LED 3 [Fig 1].

As of claim 28, Tanaka teaches the light is emitted by a device 3 (light source) [Fig 1] for generating laser light (LED) (col 1, line 20).

As of claim 29, Tanaka teaches the light is emitted by one light emitting diode (LED) (col 1, line 20).

As of claim 30, Tanaka teaches the reflected signal components (from the object 5) of the first signal or the second signal (emitted by the LED) are detected by a photodiode 10 [Fig 1].

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 31-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Aoyama (US 6,483,536 B2).

As of claim 31, Tanaka teaches the invention as cited in claim 22 above except for first

Art Unit: 2851

or second signal being detected by a charge couple device (CCD).

Aoyama teaches a distance measuring apparatus where a CCD camera is used to capture image obtained by the reflected light (col 1, lines 36-38).

At the time of the invention, it would have been obvious to a person of the ordinary skill in the art to add a CCD camera as taught by Aoyama to the camera as disclosed by Tanaka. The motivation would have been to add a CCD camera for three dimensional object measurements (col 1, lines 17-22). Therefore, it would have been obvious to combine Aoyama with Tanaka.

15. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Weir et al (US 5,831,937 A).

Tanaka in view of Aoyama teaches the invention as cited in claim 22 above except for first or second signal being generated by emission of sound.

Weir teaches a portable ranging system having an ultrasound emitter; see Abstract.

At the time of the invention, it would have been obvious to a person of the ordinary skill in the art to add an ultrasound emitter as taught by Weir to the camera as disclosed by Tanaka. The motivation would have been to have a portable ranging system (col 3, lines 13-14). Therefore, it would have been obvious to combine Weir with Tanaka.

As of claim 33, Weir teaches the distance is measured by calculating the time from emission (by ultrasound emitter) to the arrival of reflected signal components (received by ultrasound receiver); see Abstract.

As of claim 34, Weir teaches a distance measurement done by the computer 5 [Fig 1] based on the emitted ultrasound signal and reflected signal received by ultrasound receiver; see Abstract.

Art Unit: 2851

16. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Wada et al (US 7,345,692 B2).

Tanaka teaches the invention as cited in claim 22 above except for the measurement of the brightness of the surroundings.

Wada teaches an image display system [Fig 1] where a projector 20 is used to measure the brightness of the surroundings (viewing environment) (col 7, lines 17-20) for detecting reflected component (col 6, lines 58-60) without any signal being emitted.

At the time of the invention, it would have been obvious to a person of the ordinary skill in the art to measure the brightness of the surroundings as taught by Wada to the camera as disclosed by Tanaka. The motivation would have been to implement an image display system that corrects images irrespective of the distance between the projector and the screen (col 7, lines 31-33). Therefore, it would have been obvious to combine Wada with Tanaka.

17. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Takahashi (US 6,862,086 B2).

Tanaka teaches the invention as cited in claim 22 above except for the evaluation of the curvature of the projection surface.

Takahashi teaches a rear projection screen where the curvature of the screen is evaluated based on the efficiency of light at different points of the screen [Fig 8] (col 6, lines 17-20).

At the time of the invention, it would have been obvious to a person of the ordinary skill in the art to measure the light efficiency as taught by Takahashi to the camera as disclosed by Tanaka. The motivation would have been to achieve uniform brightness since the light efficiency with respect to the incidence light can be maintained at every point on the screen (col 6, lines 50-52). Therefore, it would have been obvious to combine Takahashi with Tanaka.

Art Unit: 2851

18. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Matsuda (US 6,927,784 B2).

Tanaka teaches the invention as cited in claim 22 above except for the steps are repeated at discrete time interval.

Matsuda teaches an image display system and projector where a CCD sensor 410 [Fig 2] senses (environmental information) at different time interval (col 13, lines 49-50).

At the time of the invention, it would have been obvious to a person of the ordinary skill in the art to add a CCD sensor as taught by Matsuda to the camera as disclosed by Tanaka. The motivation would have been to get projection environment information using the CCD sensor; see Abstract. Therefore, it would have been obvious to combine Matsuda with Tanaka.

19. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Wang et al (US 6,997,563 B1; Wang).

Tanaka teaches the invention as cited in claim 22 above except for an orientation vector.

Wang teaches a projector where the projector 105 projects light from a distance d in z -axis (vector) [Fig 2] which is perpendicular to the projection surface 110 and the optical axis of the projector runs parallel to the z -axis (col 2, lines 14-17) during the determination of a current projection surrounding.

At the time of the invention, it would have been obvious to a person of the ordinary skill in the art to superimpose a coordinate system as taught by Wang to the camera as disclosed by Tanaka. The motivation would have been to achieve a direct projection system where an image is oriented vertically in a plane parallel to the projection surface (col 1, lines 33-35). Therefore, it would have been obvious to combine Wang with Tanaka.

20. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Wang and further in view of Heimbuch et al (US 6,246,446 B1; Heimbuch).

Art Unit: 2851

Tanaka in view of Wang teaches the invention as cited in claim 22 above except for a mean distance (focal length).

Heimbuch teaches an image display system where during the current projection method, an auto focus system 24 adjusts an optical parameter (focal length) of the optical system of projector lens 14 (col 4, lines 1-3).

At the time of the invention, it would have been obvious to a person of the ordinary skill in the art to adjust focal length as taught by Heimbuch to the camera as disclosed by Tanaka in view of Wang. The motivation would have been to achieve an inexpensive auto-focus system for an image display system (col 2, lines 9-10). Therefore, it would have been obvious to combine Heimbuch with Tanaka in view of Wang.

21. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Katz et al (US 5,580,140 A; Katz).

Tanaka teaches the invention as cited in claim 22 above except for the light source (projector) is turned off based on a maximum and minimum values.

Katz teaches method and apparatus for projecting images from a moving train where the projector 1 [Fig 1] is turned off (and the light source) when distance d is greater than the maximum predetermined value or less than a minimum value (col 3, lines 55-59).

At the time of the invention, it would have been obvious to a person of the ordinary skill in the art to add turn off the projector based on predetermined maximum and minimum values to the camera as taught by Katz to the camera as disclosed by Tanaka. The motivation would have been to project images on a surface moving relative to a viewer (col 1, lines 6-7). Therefore, it would have been obvious to combine Katz with Tanaka.

22. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Suzuki et al et al (US 5,287,132 A; Suzuki).

Art Unit: 2851

Tanaka teaches the invention as cited in claim 22 above except for a brightness controller.

Suzuki teaches a video projector having a knob 54 [Fig 4] for controlling the brightness.

At the time of the invention, it would have been obvious to a person of the ordinary skill in the art to add a brightness controller as taught by Suzuki to the camera as disclosed by Tanaka. The motivation would have been to add a projector which is smaller in size and easy to carry and can be driven by a battery (col 1, lines 36-38). Therefore, it would have been obvious to combine Suzuki with Tanaka.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892 form.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SULTAN CHOWDHURY whose telephone number is (571)270-3336. The examiner can normally be reached on Monday through Thursday, 7:00-4:30 and alternate Monday through Friday, 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DIANE LEE can be reached on 571-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2851

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. C./

Examiner, Art Unit 2851

/Diane I Lee/

Supervisory Patent Examiner, Art Unit 2851

Application/Control Number: 10/598,475
Art Unit: 2851

Page 16

Application/Control Number: 10/598,475
Art Unit: 2851

Page 17